

CONVERTING  
**CW 10.6**  
OPEN LATERAL TO A BURIED PIPE SYSTEM

**Funding Opportunity Announcement No. BOR-DO-19-F005**

WaterSMART Grants: Small-Scale Water Efficiency Projects for Fiscal Year 2019

**APPLICANT:**

KANSAS BOSTWICK IRRIGATION DISTRICT  
528 MAIN STREET  
COURTLAND, KS 66939

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## **Technical Proposal and Evaluation Criteria**

### **Executive summary**

**Date:** April 15<sup>th</sup>, 2019    **Applicant Name:** Kansas Bostwick Irrigation District  
**City:** Courtland    **County:** Republic    **State:** Kansas

Through the activities outlined in this application, Kansas Bostwick Irrigation District (KBID) plans to convert the CW 10.6 lateral canal into a buried pipe system. If successful through this application, the funding awarded will be used to purchase materials needed to complete this project. This project accomplishes one of the specific goals outlined in the FOA through the piping of canals to conserve water.

If successful through this application, the project will begin whenever possible after January 1<sup>st</sup>, 2020 and will be completed, at the very latest, by the end of May 2021.

The proposed project takes place within and as part of KBID which is a Bureau of Reclamation Irrigation District. Since inception, KBID has had perpetual easements and right-of-way for its canal system which passes through private landowner property.

### **Background Data**

Kansas Bostwick Irrigation District (KBID) is a Pick-Sloan Project headquartered in Courtland, Kansas. The district is served by flows of the Republican River and White Rock Creek. The district holds Water Rights #385 and #4673 with the State of Kansas and is strictly utilizes these rights for agricultural irrigation. As with most irrigation districts reliant on surface streamflow and subject to changing climatic conditions, the total quantity of water supply that is manageable varies from year to year. However, under water right #385 for flows of the Republican River, KBID is able to manage up to 102,521 acre-feet annually if it is available. Through water right #4673 for flows of White Rock Creek, KBID is able to manage up to 19,700 acre-feet annually.

KBID consists of approximately 100 miles of unlined open main canals, 50 miles of unlined open lateral canals and 100 miles of buried PVC pipeline providing service to 42,500 acres of cropland in Republic and Jewell Counties in Kansas. The three primary crops raised in the district are Corn, Soybeans and Alfalfa. There are approximately 350 landholders served by the district through approximately 675 field turnouts. KBID considers 15" per acre to be a full supply

for its irrigators, however, in most of the last 25 years, restrictions have been imposed on irrigators in the district due to short water supplies.

The Republican River Basin remained embroiled in controversy over groundwater depletion of river flows from the late 1990s until the latest Supreme Court Settlement on the issue that was delivered in 2015. That particular ruling stated that Nebraska had not delivered the prescribed amount of water to Kansas. For its overuse of allocation, the Court ordered Nebraska to pay Kansas \$5.5 million. While the ruling went in favor of Kansas, it didn't bring back the water that Nebraska overused in the past. While relations on the issue between the states have recently improved, the most recent Supreme Court action leaves compact compliance in the hands of the State of Nebraska. Kansas, and therefore KBID's supply in water-short years, is now based upon the State of Nebraska's forecast of water availability and ability to augment river flows by shutting off surface projects and ordering water released from reservoirs in Nebraska to deliver "Compact" water to Kansas, as well as pumping groundwater from two augmentation facilities. The only tool KBID has to answer the problems created by this controversy and to protect what supply is available annually, is to continue improving the district's efficiency and conserving water, primarily through projects like the one outlined in this application.

KBID has previously worked in conjunction with the Bureau of Reclamation on numerous Water Conservation Field Services Program opportunities the district has been awarded. Under a 2005 challenge grant applied for in 2006 and awarded in 2007, 9 miles of large laterals were buried by the fall of 2010. An estimated 26 miles of laterals have also been buried under Field Service Agreements in the last 18 years. In 2018, KBID completed the burial of 1.3 miles of small laterals using funding received through a WaterSMART Grants: Small-Scale Water Efficiency Projects for Fiscal Year 2017. In addition, the district has buried 71 miles of laterals without assistance from Reclamation. Currently the district is completing the burial of 3.38 miles of pipeline to eliminate 4.1 miles of lateral canals with assistance from a WaterSMART Grants: Water and Energy Efficiency Grant for Fiscal Year 2018. With the approval of this application, continuity may be maintained in the district's goal of converting open canals to buried pipe systems.

## **Project Location**

The CW 10.6 lateral is located in Republic County, Kansas and is approximately 3.9 miles south of Courtland, KS. The project latitude is 39°43'N and longitude is 97°53'W.



## **Technical Project Description and Milestones**

The activity and work involved in completing the proposed project will include three major tasks as follows:

- Task 1 - Site Preparation - will begin whenever able after January 1<sup>st</sup>, 2020
- Task 2 - Laying pipeline and installing turnouts - when able following Task 1
- Task 3 - Concluding tasks of the project after the pipe is laid - site cleanup and final dirt work - will conclude no later than May of 2021

As a general rule, the duration of each portion of the project is estimated in the following manner: Task 1 represents 30% of the project, Task 2, 60%, and Task 3, 10% of the project.

The pipeline for the 10.6 lateral will have a new initiation point through this project and moved upstream approximately  $\frac{1}{4}$  mile from the original 10.6 lateral headgate. The pipeline initiation point will be at mile station 542 + 85.0 on the Courtland West canal adjacent to the Courtland West terminal waste-way.

Task 1 preparation includes bull dozer and patrol work to prepare the alignment of the proposed buried line and excavator work to remove existing structures. Removed structures will be broken with the KBID crane and wrecking ball if they are too large to load and haul. Structures will be loaded with the KBID loaders into dump trucks and taken to an established scrap yard. Also included in task 1 is the stockpiling of pipe and material to be used on the project.

Task 2 includes the use of the KBID trencher to trench the line for the pipe. An excavator with a sling is used to swing the pipe into the trench and align the pipe to be pushed together. A bull dozer or patrol is then used to backfill the trench.

Task 3 includes picking up any and all scrap or excess material left on the site and leaving it in a manner that the landowner can do further earthwork if they desire with their own farm equipment. Any open lateral, which is not in the alignment of the pipeline, will also be destroyed in task 3.

With the previous experience completing these types of projects and the skill of the KBID staff, along with owning the full line of equipment required, it's important to note that none of the project tasks will require any labor or machinery support outside of the district's own work force & equipment.

As this project will leave existing easement and right-of-way for the proposed route of the buried line, a new easement will be needed. KBID has previously worked with the Nebraska-Kansas Area Office of the Bureau of Reclamation in acquiring new easements for similar projects and will do so again on this project.

There are many reasons KBID would like to complete the conversion of both of these open canals to buried pipe systems. Along with the most recognizable objective of water savings, due to diminished seepage, mitigated operational spills, and evaporative losses, this project would also mitigate operations and maintenance costs for the district. Once an open canal is converted to a piped system, there is no longer the need to perform all the required duties to maintain the canal such as mechanically removing debris within the profile of the canal or spraying herbicides into the local environment to control various species that thrive in the micro-ecosystems created by the use and operation of open canal systems.

The most easily measured result and expectation of the project will be identified through the conservation of water. Seepage and evaporative losses in these two stretches of open canal are estimated to be at a rate of 1 cubic foot per second per mile. Using a 90-day irrigation season, and the 1.0-mile total

distance of open canal to be eliminated by this project, KBID should experience an annual water savings of 180 acre-feet. This project will also eliminate two waste-ways and therefore their associated operational spills. By using a conservative figure of 0.5 cubic feet per second as the operational spill amount over both waste-way weirs each day of an estimated 90-day irrigation season, this project will save an additional 90 acre-feet of water annually. Therefore, by combining the amount of water saved from seepage and evaporative losses with the amount of water saved by eliminating operational spills through waste-ways, it is expected that a minimum of 270 acre-feet of water would be conserved annually by completing this project.

As pipelines are a much less labor-intensive way to deliver irrigation water, as well as being more reliable than canals, KBID can expect to provide more consistent water delivery while using fewer man-hours to do so following completion of this project. The district will also benefit by no longer having to buy the chemicals needed to control vegetative species in the open canal. Likewise, following project completion, the district will spend less on fuel for pickups and other equipment used for standard operation and maintenance. Both of these points have obvious ancillary benefits to the environment with the mitigation of chemical injection into the environment and less carbon emission by internal combustion engines.

## Evaluation Criteria

### ***E.1.1. Evaluation Criterion A—Project Benefits (35 points)***

Up to 35 points may be awarded based upon evaluation of the benefits that are expected to result from implementing the proposed project. This criterion considers a variety of project benefits, including the significance of the anticipated water management benefits and the public benefits of the project. This criterion prioritizes projects that modernize existing infrastructure in order to address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflict in the region.

- Describe the expected benefits and outcomes of implementing the proposed project.

As stated earlier in this application, there are many reasons KBID would like to complete the conversion of this open lateral canal to entirely buried pipe system. The most recognizable expected objective of this project will be saving and conserving an estimated 270 acre-feet annually due to diminished seepage, mitigated operational spills, and evaporative losses. This project would also mitigate operations and maintenance costs for the district and have ancillary benefits to the environment.

- What are the benefits to the applicant's water supply delivery system?

A benefit to KBID's water supply delivery system would be the fact that the pipeline will increase the consistency of delivery to the specific field turnouts involved as well as increased pressure to those turnouts. In contrast to delivering water through constant head orifices as is currently done, following the project, the water will be delivered through aeration screens, geared butterfly valves and flowmeters with needle-dial readouts. The overall result will be screened water free of debris, fish and crawfish that previously would have been abandoned in fields, with a more easily and accurately measured flow.

- If other benefits are expected explain those as well. Consider the following:
  - Extent to which the proposed project improves overall water supply reliability
  - The expected geographic scope benefits from the proposed project (e.g., local, sub-basin, basin)
  - Extent to which the proposed project will increase collaboration and information sharing among water managers in the region
  - Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism)
  - Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the district's water supply). Describe any on-farm efficiency work that is currently being completed or is anticipated to be completed in the future using NRCS assistance through EQIP or other programs.

While the projected annual water savings of 270 acre-feet is not a colossal amount in the big scheme of things within the basin, every bit of conservation effort does have a positive long-term cumulative effect on the available water supply for all water users reliant on flows of the Republican River. Bostwick Irrigation District in Nebraska (NBID) is also reliant on the same source of water as KBID. Therefore, any savings realized by one irrigation district is potentially realized by the other as an increase in overall water supply year in and year out with a higher degree of annual reliability. The positive impacts from projects like this one can be felt throughout the local and sub-basin area of South Central Nebraska and North Central Kansas.

Obviously, the water savings experienced through this project, in a cumulative effect with the plethora of other similar pipeline projects completed by KBID over the years, has in essence, extended each irrigation season. Therefore, in years of short supply, the amount of water available to irrigate crops with, goes further. This has the effect of increasing crop yields which subsequently helps the local economy which is almost solely reliant on agriculture.

Along with the positive benefits to the local economy reliant on agriculture, pipeline projects like this one also have allowed for more water to be stored in KBID's supply reservoirs later into each summer allowing for increased recreational opportunities like water skiing and fishing.

Another often overlooked benefit to these projects, like the one outlined in this application, is the elimination of the need to chemically maintain the vegetation that invades the micro-ecosystems associated with open canals. Thus, the environment experiences a benefit by not being subject to the added injection of chemicals used to control certain vegetative species.

Additionally, one landowner currently served by the CW 10.6 Lateral has shown interest in installing a center pivot on their acres that are currently gravity irrigated and inefficient. With the installation of this pipeline the likelihood that he carries through with the installation of the pivot greatly increases as would his plans to apply for technical and financial assistance from NRCS through the EQIP program. Without the installation of this pipeline, it remains unlikely that he will make the on-farm investment.

#### **E.1.2 Evaluation Criterion B—Planning Efforts Supporting the Project (35 points)**

Up to **35 points** may be awarded based on the extent to which the proposed on-ground project is supported by an applicant's existing water management plan, water conservation plan, System Optimization Review (SOR), or identified as part of another planning effort led by the applicant. This criterion prioritizes projects that are identified through local planning efforts and meet local needs.

Describe how your project is supported by an existing planning effort.

With the approval of this application, continuity may be maintained in KBID's goal of converting open lateral canals to piped systems to further the objective of conserving water. As stated earlier in this application, KBID has previously worked in conjunction with the Bureau of Reclamation on numerous awards for converting canals to pipelines. KBID has been awarded Water Conservation Field Services Program grants, a 2025 challenge grants, as well as more recently awarded WaterSMART grants which have all aided in allowing KBID to continue making positive and water-conserving improvements to our infrastructure. A good exhibit of how devoted to this goal KBID is, one must only look to the 71 miles of pipe the district has buried without outside assistance.

- Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?

The award available thought this FOA will allow KBID to maintain continuity in the goal of converting all feasible lateral canals to piped systems.

- Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.

The project outlined in this application has been determined as a priority in KBID's existing planning efforts due to the size of funding needed to complete the project in regards to the dollar amount available through this FOA. In addition, the canal outlined to be converted to pipe in this application has become troublesome in its 'ability to maintain consistent delivery volumes.

#### ***E.1.3. Evaluation Criterion C—Project Implementation (10 points)***

Up to **10 points** may be awarded based upon the extent to which the applicant is capable of proceeding with the proposed project upon entering into a financial assistance agreement. Applicants that describe a detailed plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion. *Please also see Section C.3.3. Length of Projects.*

- Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

Task 1 - Site Preparation - will begin whenever able after January 1<sup>st</sup>, 2020

Task 2 - Laying pipeline and installing turnouts - when able following Task 1

Task 3 - Concluding tasks of the project after the pipe is laid - site cleanup and final dirt work - will conclude no later than May of 2021

As a general rule, the duration of each portion of the project is estimated in the following manner: Task 1 represents 30% of the project, Task 2, 60%, and Task 3, 10% of the project.

As KBID has multiple projects planned to be occurring in relatively the same time period and prior to the 2021 irrigation season, the CW 10.6 lateral project will occur whenever possible after the 2020 irrigation season concludes and prior to the 2021 irrigation season beginning.

The pipeline for the 10.6 lateral will have a new initiation point through this project and moved upstream approximately ¼ mile from the original 10.6 lateral headgate. The pipeline initiation point will be at mile station 542 + 85.0 on the Courtland West canal adjacent to the Courtland West terminal waste-way. It is expected that the project will begin whenever possible following January 1<sup>st</sup>, 2020. The first task in the project will be working on site preparation and installation of the new 10.6 lateral headgate. Prior to trenching in the pipeline, a

survey will be completed to acquire new easements for the proposed route of the pipeline that will leave current right-of-way and easement. After the installation of the pipeline the final tasks of the project will involve removing all debris left from project activities and completing the final dirt moving work to leave the ground in a condition that the landowner may do additional dirt work with their own equipment if they so choose.

- Describe any permits that will be required, along with the process for obtaining such permits.

No permits have been identified to be needed for this project.

- Identify and describe any engineering or design work performed specifically in support of the proposed project.

As with all pipelines KBID has installed in the past, this one shall be installed following the manufacturer's design criteria. KBID has consulted Reclamation engineers in the design of this project. All meter installations shall meet State of Kansas specifications.

- Describe any new policies or administrative actions required to implement the project.

No new policies or administrative actions were required to implement this project.

- Describe how the environmental compliance estimate was developed. Have the compliance costs been discussed with the local Reclamation office?

All environmental compliance estimates and costs were discussed and developed with the help of employees of the Nebraska Kansas Area Office of the Bureau of Reclamation.

#### **E.1.4. Evaluation Criterion D—Nexus to Reclamation (10 points)**

Up to **10 points** may be awarded based on the extent that the proposal demonstrates a nexus between the proposed project and a Reclamation project or activity. Describe the nexus between the proposed project and a Reclamation project or activity, including:

- Is the proposed project connected to a Reclamation project or activity? If so, how? Please consider the following:
  - Does the applicant receive Reclamation project water?
  - Is the project on Reclamation project lands or involving Reclamation facilities?
  - Is the project in the same basin as a Reclamation project or activity?
  - Will the proposed work contribute water to a basin where a Reclamation project is

located?

- Will the project benefit any tribe(s)?

Kansas Bostwick Irrigation District (KBID) is a Pick-Sloan Project headquartered in Courtland, Kansas. KBID is a Bureau of Reclamation irrigation district served by and lying within the Bureau of Reclamation's Nebraska-Kansas Project Area headquartered in McCook, Nebraska. Water storage for the district is within the Corps of Engineers Harlan County Reservoir in Nebraska and in the Bureau of Reclamation's Lovewell Reservoir in Kansas, both of which are in the same basin of the Republican River.

#### ***E.1.5. Evaluation Criterion E—Department of the Interior Priorities (10 points)***

Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports the Department of the Interior priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the Priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.

##### ***1. Creating a conservation stewardship legacy second only to Teddy Roosevelt***

- a. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;
- b. Examine land use planning processes and land use designations that govern public use and access;
- c. Revise and streamline the environmental and regulatory review process while maintaining environmental standards.
- d. Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;
- e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;
- f. Identify and implement initiatives to expand access to DOI lands for hunting and fishing;
- g. Shift the balance towards providing greater public access to public lands over restrictions to access.

##### ***2. Utilizing our natural resources***

- a. Ensure American Energy is available to meet our security and economic needs;
- b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;
- c. Refocus timber programs to embrace the entire 'healthy forests' lifecycle;
- d. Manage competition for grazing resources.

**3. *Restoring trust with local communities***

- a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;
- b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.

**4. *Striking a regulatory balance***

- a. Reduce the administrative and regulatory burden imposed on U.S. industry and the public;
- b. Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.

**5. *Modernizing our infrastructure***

- a. Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;
- b. Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;
- c. Prioritize DOI infrastructure needs to highlight:
  - 1. Construction of infrastructure;
  - 2. Cyclical maintenance;
  - 3. Deferred maintenance.

As it pertains to Department of the Interior (DOI) Priorities, this project is an opportunity to update and improve KBID's distribution system and infrastructure. Federal assistance through this funding opportunity is essential and necessary to aid KBID in its' plan to maintain continuity in the District's overall conservation efforts and to reach contracted goals for improved efficiency. Failure to receive this funding potentially puts this contract commitment at risk.

As stated earlier, controversy surrounded the Republican River Basin in the past. Forward thinking conservation projects like this one help restore trust between the various states that are part of the Republican River Compact and all of their respective users. For other users to see an entity like KBID continuing to implement water conservation measures like pipeline burial projects, it can only aid in strengthening the bonds of trust between all water users in the basin and encourage them to follow suit.

The modernization of KBID's infrastructure though the elimination of open and inefficient laterals and subsequent move towards buried pipelines for the District's delivery system aligns with DOI priorities that concentrate on the general modernization and construction of improved and new infrastructure.

## **Project Budget**

### **Funding Plan**

Kansas Bostwick's contribution to the project funding will come partially from the irrigation district's conservation reserve funds as well as O&M funds raised on annual basis through assessments. The Board of Directors also charges each irrigator receiving a benefit from every project a fee for that benefit. It is Board Policy that anyone receiving a benefit should in some way participate in the cost of the improvement to the system. This will not be considered in the application and will be a portion of the districts share.

If successful, Kansas Bostwick will contribute \$77,106.45 to the project by way of providing the equipment and labor and will utilize award funding in the amount of \$66,417.74 to cover the cost of materials needed. Therefore, total project costs would come to \$143,524.19, with KBID providing 53.7% of the total, and award funding comprising the remaining 46.3%.

### **Budget Proposal**

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal funding	\$66,417.74
Costs to be paid by the applicant	\$77,106.45
Value of third party contributions	\$0.00
<b>TOTAL PROJECT COST</b>	<b>\$143,524.19</b>

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/UNIT	QUANTITY		
<b>Salaries and Wages</b>				
Foreman (BM)	\$19.72	89.70	HOURS	\$1,768.80
Foreman (DR)	\$19.61	89.70	HOURS	\$1,758.93
Excav. Optr (TA)	\$15.58	89.70	HOURS	\$1,397.46
Trencher Optr. (DD)	\$18.00	89.70	HOURS	\$1,614.52
Loader Optr (RE)	\$15.46	89.70	HOURS	\$1,386.70
Dozer Optr. (GK)	\$15.25	89.70	HOURS	\$1,367.86
Excav Optr. (WF)	\$14.90	89.70	HOURS	\$1,336.47
Laborer (CL)	\$13.12	89.70	HOURS	\$1,176.81
Laborer (LS)	\$15.63	89.70	HOURS	\$1,401.94
Laborer (FH)	\$14.65	89.70	HOURS	\$1,314.04
Laborer (NM)	\$13.12	89.70	HOURS	\$1,176.81

Laborer (NM)	\$13.12	<b>89.70</b>	HOURS	<b>\$1,176.81</b>
Laborer (NM)	\$13.12	<b>89.70</b>	HOURS	<b>\$1,176.81</b>
<b>Fringe Benefits</b>				
Foreman (BM)	\$11.48	<b>89.70</b>	HOURS	<b>\$1,030.09</b>
Foreman (DR)	\$10.59	<b>89.70</b>	HOURS	<b>\$950.15</b>
Excav. Optr (TA)	\$14.64	<b>89.70</b>	HOURS	<b>\$1,312.95</b>
Trencher Optr. (DD)	\$10.84	<b>89.70</b>	HOURS	<b>\$972.73</b>
Loader Optr (RE)	\$6.34	<b>89.70</b>	HOURS	<b>\$568.85</b>
Dozer Optr. (GK)	\$14.65	<b>89.70</b>	HOURS	<b>\$1,313.82</b>
Excav Optr. (WF)	\$2.57	<b>89.70</b>	HOURS	<b>\$230.51</b>
Laborer (CL)	\$6.05	<b>89.70</b>	HOURS	<b>\$542.99</b>
Laborer (LS)	\$10.82	<b>89.70</b>	HOURS	<b>\$970.11</b>
Laborer (FH)	\$10.67	<b>89.70</b>	HOURS	<b>\$956.98</b>
Laborer (NM)	\$6.05	<b>89.70</b>	HOURS	<b>\$542.99</b>
Laborer (NM)	\$6.05	<b>89.70</b>	HOURS	<b>\$542.99</b>
Laborer (NM)	\$6.05	<b>89.70</b>	HOURS	<b>\$542.99</b>
<b>Equipment</b>				
JCB Excavator	\$46.42	67.10	HOURS	<b>\$3,114.73</b>
CAT 320C Excavator	\$46.42	61.72	HOURS	<b>\$2,864.86</b>
JD 690 Long-reach Excavator	\$56.34	22.64	HOURS	<b>\$1,275.44</b>
CAT D7 Dozer	\$85.88	70.16	HOURS	<b>\$6,025.52</b>
IHC TD-15 Dozer	\$67.12	43.34	HOURS	<b>\$2,908.78</b>
Fiat-Allis 14C Dozer	\$63.91	24.48	HOURS	<b>\$1,564.71</b>
Linkbelt ls-78 Crane	\$73.87	3.19	HOURS	<b>\$235.36</b>
Skid Steer	\$17.32	6.06	HOURS	<b>\$104.95</b>
Motorgrader	\$59.31	12.62	HOURS	<b>\$748.25</b>
Hough Loader #1	\$82.93	17.95	HOURS	<b>\$1,488.94</b>
Komatsu Loader #2	\$82.93	11.11	HOURS	<b>\$921.08</b>
Forklift	\$20.82	5.72	HOURS	<b>\$119.17</b>
Port Industries Trencher	\$130.58	31.84	HOURS	<b>\$4,157.54</b>
Peterbilt Dump Truck #1	\$37.32	88.18	HOURS	<b>\$3,291.00</b>
Peterbilt Rock Dump Truck #2	\$49.49	116.95	HOURS	<b>\$5,788.03</b>
Chevy C-70 Dump Truck #4	\$37.32	2.04	HOURS	<b>\$76.14</b>
IHC Dump Truck #3	\$30.47	50.75	HOURS	<b>\$1,546.49</b>
American General Dump Truck	\$37.32	3.16	HOURS	<b>\$117.86</b>
Peterbilt Semi Truck	\$45.43	118.70	HOURS	<b>\$5,392.69</b>
Load King Lowboy Trailer	\$12.12	22.41	HOURS	<b>\$271.67</b>
JLG 1255 Telehandler	\$47.78	17.89	HOURS	<b>\$854.65</b>
New Holland E35B Mini-Excavator	\$10.10	0.64	HOURS	<b>\$6.49</b>
<b>Supplies and Materials</b>				
21" PVC Pipe	\$15.94	4,004	FEET	<b>\$63,823.76</b>

24" x 84" Flat Back Frame Canal Gate	\$1,561.00	1	ITEM	<b>\$1,561.00</b>
24" x 21" Reducer	\$153.54	1	ITEM	<b>\$153.54</b>
21" 30° Elbow - solvent weld	\$179.39	2	ITEM	<b>\$358.78</b>
21" 90° Elbow - solvent weld	\$344.22	1	ITEM	<b>\$344.22</b>
21" X 15" Reducer	\$176.44	1	ITEM	<b>\$176.44</b>
<b>Other</b>				
Surveying for new Easement				<b>\$4,700.00</b>
Environmental-Reg. Compliance				<b>\$1,000.00</b>
<b>TOTAL DIRECT COSTS</b>				<b>\$143,524.19</b>

### Budget Narrative

Jared "Pete" Gile is the Superintendent of KBID and will be the Project Manager. He will be in charge of the day to day operations of the project and will be assisted by on-site foremen. Office Manager, Tracie Nelson will be in charge of tracking specific figures and costs as the project unfolds. Both individual's roles are considered normal day to day costs for KBID and within their regular daily scope of duties as employees of the district, so their salaries, specifically applicable to this project will not be included as a project costs and the same goes for executing compliance and reporting requirements.

Field crew hours and the subsequent associated salary and fringe benefit figures were calculated using actual project numbers from previous projects of similar size completed by KBID. KBID has buried laterals with its equipment and crew for years and has many years of data to aid in extrapolating these calculated figures for estimating costs relating to hours work be each employee.

The labor rates included for all personnel is certified to be the actual labor rates of each individual identified in this application. Also included in the tables below are the actual fringe benefit rates for each individual which includes Health coverage, FICA, and KPERs retirement.

2019 KBID SALARIES	
EMPLOYEE	HOURLY WAGE
Foreman (BM)	\$19.72
Foreman (DR)	\$19.61
Excav. Optr (TA)	\$15.58
Trencher Optr. (DD)	\$18.00
Loader Optr (RE)	\$15.46
Dozer Optr. (GK)	\$15.25
Excav Optr. (WF)	\$14.90
Laborer (CL)	\$13.12
Laborer (LS)	\$15.63
Laborer (FH)	\$14.65
Laborer (NM)	\$13.12
Laborer (NM)	\$13.12
Laborer (NM)	\$13.12

EMPLOYEE	MEDICARE		FICA		KPERS		HEALTH INSURANCE		BENEFIT HOURLY WAGE TOTAL
	Monthly	Hourly	Monthly	Hourly	Monthly	Hourly	Monthly	Hourly	
Foreman (BM)	\$46.81	\$0.27	\$200.16	\$1.14	\$343.26	\$1.95	\$1,431.00	\$8.13	\$11.48
Foreman (DR)	\$23.98	\$0.14	\$102.56	\$0.58	\$306.83	\$1.74	\$1,431.00	\$8.13	\$10.59
Excav. Optr (TA)	\$33.77	\$0.19	\$144.40	\$0.82	\$271.19	\$1.54	\$2,126.89	\$12.08	\$14.64
Trencher Optr. (DD)	\$44.22	\$0.25	\$189.09	\$1.07	\$313.32	\$1.78	\$1,362.04	\$7.74	\$10.84
Loader Optr (RE)	\$34.30	\$0.19	\$146.66	\$0.83	\$269.10	\$1.53	\$666.14	\$3.78	\$6.34
Dozer Optr. (GK)	\$35.18	\$0.20	\$150.44	\$0.85	\$265.45	\$1.51	\$2,126.89	\$12.08	\$14.65
Excav Optr. (WF)	\$36.57	\$0.21	\$156.39	\$0.89	\$259.35	\$1.47	\$0.00	\$0.00	\$2.57
Laborer (CL)	\$32.40	\$0.18	\$138.53	\$0.79	\$228.37	\$1.30	\$666.14	\$3.78	\$6.05
Laborer (LS)	\$38.00	\$0.22	\$162.48	\$0.92	\$272.06	\$1.55	\$1,431.00	\$8.13	\$10.82
Laborer (FH)	\$36.35	\$0.21	\$155.42	\$0.88	\$255.00	\$1.45	\$1,431.00	\$8.13	\$10.67
Laborer (NM)	\$32.40	\$0.18	\$138.53	\$0.79	\$228.37	\$1.30	\$666.14	\$3.78	\$6.05
Laborer (NM)	\$32.40	\$0.18	\$138.53	\$0.79	\$228.37	\$1.30	\$666.14	\$3.78	\$6.05
Laborer (NM)	\$32.40	\$0.18	\$138.53	\$0.79	\$228.37	\$1.30	\$666.14	\$3.78	\$6.05

ESTIMATED LABORS HOURS PER TASK - RIDGE 3.9 & CW 9.5						
EMPLOYEE	TASK 1	TASK 2	TASK 3	TOTAL HOURS	TOTAL HOURLY WAGE	TOTAL COST
Foreman (BM)	26.91	53.82	8.97	89.70	\$31.20	\$2,798.89
Foreman (DR)	26.91	53.82	8.97	89.70	\$30.20	\$2,709.08
Excav. Optr (TA)	35.88	53.82	0.00	89.70	\$30.22	\$2,710.41
Trencher Optr. (DD)	8.97	71.76	8.97	89.70	\$28.84	\$2,587.25
Loader Optr (RE)	26.91	35.88	8.97	89.70	\$21.80	\$1,955.55
Dozer Optr. (GK)	26.91	304.00	38.00	89.70	\$29.90	\$2,681.68
Excav Optr. (WF)	35.88	53.82	0.00	89.70	\$17.47	\$1,566.98
Laborer (CL)	8.97	71.76	8.97	89.70	\$19.17	\$1,719.79
Laborer (LS)	8.97	71.76	8.97	89.70	\$26.45	\$2,372.06
Laborer (FH)	8.97	71.76	8.97	89.70	\$25.32	\$2,271.02
Laborer (NM)	8.97	71.76	8.97	89.70	\$19.17	\$1,719.79
Laborer (NM)	8.97	71.76	8.97	89.70	\$19.17	\$1,719.79
Laborer (NM)	8.97	71.76	8.97	89.70	\$19.17	\$1,719.79
<b>TOTALS</b>	<b>242</b>	<b>1057</b>	<b>128</b>	<b>1,166.04</b>	<b>\$318.10</b>	<b>\$28,532.09</b>

As KBID owns all the necessary equipment and machinery that will be required for this project, none will have to be rented. KBID established hourly rates for this application by using rates established by the United States Army Corps of Engineers within their Construction Equipment Ownership and Operating Expense Schedule. Estimates on the number of hours required for each machine were extrapolated from using actual numbers and data from similar sized projects KBID has completed in the past.

All of the materials and supplies needed for the project are listed above in the Budget Proposal Table. The supplies are itemized by major category, unit price, quantity and purpose. All items are those that will be used in the field for accomplishing the goals of this project. All costs were derived from actual product costs or by quotes received by KBID on each product within the last 365 days.

No work will be done on this project by sub recipients, consultants, or contractors.

An estimate of \$1000 was provided by staff at the Bureau of Reclamation's Nebraska-Kansas Area Office in regards to activities undertaken by Reclamation for environmental and regulatory compliance. This has been included as a line item within the project budget.

An estimated \$4,700 has been included as a line item to complete a survey and acquire a new easement for the proposed route of the pipeline. This estimate was based on a similar project completed within the last year.

No other expenses or indirect costs have been identified.

The total cost of the project is \$143,524.19. Kansas Bostwick will contribute \$77,106.45 to cover the costs of salaries, equipment, completing the survey and environmental compliance measures associated with the project. Through this Funding Opportunity, KBID hopes to be awarded \$66,417.74 to cover the costs of the materials and supplies needed to complete this conservation project.

### **Environmental and Cultural Resources Considerations**

Construction of Kansas Bostwick Irrigation District was done in several phases. The first phase of the project, or Block I, was completed in 1957. The final phase of the project, or Block IV, was completed in 1969. As one can imagine, the construction of approximately 250 miles of canals and water delivery structures through previously unirrigated land caused a significant impact to the local environments where the construction originally took place.

At KBID, we like to think that through the conversion of open canals to buried pipe systems, we are returning the local environment surrounding these

projects to the way they existed prior to canal construction, but still with the benefit of irrigation for increased crop production.

The proposed project should have minimal impact on the surrounding environment. The earth-disturbing work that will occur through the project will be to excavate a trench to lower the pipe into. After the pipe is placed in the trench, it will be back-filled by a bull-dozer or patrol. The remaining profile of the open canal will be eliminated by a bull-dozer and along with a patrol, will be used to smooth and feather out the soil that previously made up the canal channel and profile. The only way in which air quality should be affected during the project is through any dust that may be kicked up by tires or tracks of the machines while they are in operation.

The Summary of the Final Environmental Impact Statement for the Republican River Basin in conjunction with the Repayment and Long-Term Water Service Contract Renewals that was published in June of 2000 didn't identify any Threatened or Endangered Species in our area of the basin and to this day there are none known to exist.

There are no wetlands or surface waters inside the project boundaries that fall under the Clean Water Act jurisdiction as "Waters of the United States" that would potentially be impacted by this project.

There are no known archaeological sites in the proposed project area.

The proposed project will have no effect on low income or minority populations.

The proposed project will not limit access to any ceremonial use of Indian sacred sites or result in other impacts on tribal lands.

The proposed project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area.

KANASAS BOSTWICK IRRIGATION DISTRICT NO. 2

RESOLUTION NO. 2019-002

Whereas the Republican River Basin is frequented by drought,

Whereas water is the lifeblood of the agricultural community,

Whereas WaterSMART grants provide a source of funding for capital improvements of the District,

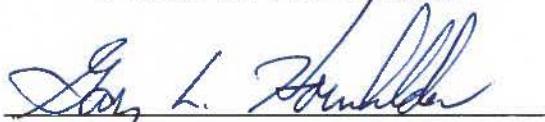
Whereas the converting of open ditch lateral to buried pipelines will conserve large volumes of water and improve efficiencies,

Whereas funding is needed to maintain continuity in the District's efforts to improve efficiency,

Now therefore be it resolved that the Kansas Bostwick Irrigation District No. 2 Board of Directors agrees and authorizes that this application be submitted to the Bureau of Reclamation for the consideration under the **WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2019 Funding Opportunity Number BOR-DO-19-F005** grant program for the conversion of the CW 10.6 to a piped system. If selected, the Board of Directors agree to provide in-kind funding to the project and will work closely with Reclamation to meet all established deadlines.

The foregoing Resolution was considered by the Board of Directors of the Kansas Bostwick Irrigation District No. 2 at a meeting held on 8 April 2019, and unanimously adopted.

BOARD OF DIRECTORS



Gary L. Housholder – President



Brad D. Peterson - Secretary



Monty D. Dahl - Treasurer